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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,973	07/28/2003	Byoung-Ho Choi	1293.1912	4090

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EXAMINER	
GUPTA, PARUL H	
ART UNIT	PAPER NUMBER
2627	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/627,973	CHOI ET AL.	
	Examiner	Art Unit	
	Parul Gupta	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☒ Claim(s) *1 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-32 are pending for examination as interpreted by the examiner. The amendment filed on 1/29/07 was considered.

Claim Objections

2. Claims 1 and 21 are objected to because of the following informalities: minor typographical errors such as the use of the word "form" instead of "from" when referring to the direction that the objective lens is moved. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 6, 13, 21, 25-27, 29, and 31-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Okada, US Patent 5,286,965.

Regarding claim 1, Okada discloses a method of preventing a disc from being scratched by an objective lens (abstract), the method comprising: performing a focus pull-in operation in which the objective lens is moved toward and away from a surface of the disc (column 4, lines 27-48); and moving the objective lens away from the disc if a level of a pull-in signal, generated during the focus pull-in operation to reflect a distance between the objective lens and the disc (column 4, lines 30-34), remains lower than a predetermined critical level for at least a predetermined critical period of time (column 4, lines 62-68).

Regarding claim 6, Okada teaches a method of preventing a disc from being scratched by an objective lens (abstract), the method comprising: initializing a pull-in signal (initial signal read-out as given in column 4, lines 15-19), a level of which reflects a distance between the objective lens and a surface of the disc (column 4, lines 30-34); performing a focus pull-in operation in which the objective lens is moved toward and away from a surface of the disc (column 4, lines 27-48); checking the level of the pull-in signal (done continuously as given in column 4, lines 15-19); if the level of the pull-in signal is lower than a predetermined critical level, checking a time for which the level of the pull-in signal remains lower than the predetermined critical level (column 4, lines 34-38); and moving the objective lens away from the disc if the time is at least a predetermined critical period of time (column 4, lines 62-68).

Regarding claim 13, Okada teaches in figure 3 an apparatus preventing a disc from being scratched by an objective lens, the apparatus comprising: a pickup (12) having an objective lens; an actuator actuating the pickup (17); a signal detector (21 and 22) detecting a pull-in signal from the pickup a level of which reflects a distance between the objective lens and a surface of the disc (column 4, lines 30-34); and a controlling unit (column 4, lines 62-68) that moves the objective lens away from the disc if the level of the pull-in signal is maintained lower than a predetermined critical level for at least a predetermined critical period of time.

Regarding claim 21, Okada teaches a computer readable medium encoded with processing instructions implementing a method of preventing a disc from being scratched by an objective lens (inherent to the method of claim 1), the method

comprising: performing a focus pull-in operation in which the objective lens is moved toward and away from a surface of the disc (column 4, lines 27-48); and moving the objective lens away from the disc if a level of a pull-in signal, generated during the focus pull-in operation to reflect a distance between the objective lens and the disc (column 4, lines 30-34), remains lower than a predetermined critical level for at least a predetermined critical period of time (column 4, lines 62-68).

Regarding claim 25, Okada teaches a computer readable medium encoded with processing instructions implementing a method of preventing a disc from being scratched by an objective lens (inherent to the method of claim 6), the method comprising: initializing a pull-in signal (initial signal read-out as given in column 4, lines 15-19), a level of which reflects a distance between the objective lens and a surface of the disc (column 4, lines 30-34); performing a focus pull-in operation in which the objective lens is moved toward and away from a surface of the disc (column 4, lines 27-48); checking the level of the pull-in signal (done continuously as given in column 4, lines 15-19); if the level of the pull-in signal is lower than a predetermined critical level, checking a time for which the level of the pull-in signal remains lower than the predetermined critical level (column 4, lines 34-38); and moving the objective lens away from the disc if the time is at least a predetermined critical period of time (column 4, lines 62-68).

Regarding claim 26, Okada teaches in figure 3 an apparatus preventing a disc from being scratched by an objective lens, the apparatus comprising: a pickup (12); an actuator actuating the pickup (17); a signal detector (21 and 22) detecting a pull-in

signal from the pickup a level of which reflects a distance between the objective lens and a surface of the disc (column 4, lines 30-34); and a controller (column 4, lines 62-68) checking the levels of the pull-in signal and outputting a control signal, if the level of the pull-in signal is lower than a predetermined critical level for at least a predetermined critical period of time (column 4, lines 62-68); and a drive moving the pickup based on the control signal (17).

Regarding claim 29, Okada teaches a method of controlling a movement of a pickup, comprising: radiating a laser beam from the pickup (column 3, lines 18-19); focusing the laser beam onto a surface of a reflective disc (column 3, lines 20-22); receiving a reflected beam of light from the disc with a plurality of light-receiving units ("data signal detecting means" and "focusing error signal detecting means" of column 3, lines 22-27); generating a focus pull-in signal (done by "data signal detecting means" of column 3, lines 24-25) and a focus error signal based on the received light (done by "focusing error signal detecting means" of column 3, lines 27-28), a level of the focus pull-in signal reflecting a distance between the pickup and the surface of the reflective disc (column 4, lines 30-34); checking the level of the generated focus pull-in signal (column 4, lines 15-22) and focus error signals (column 3, lines 22-35); and generating a current based on the level of the signals (signal used as control signal) so as to move the pickup, if a level of the checked pull-in signal is lower than a predetermined critical level for at least a predetermined critical period of time (column 4, lines 62-68);

Regarding claim 31, Okada teaches a method of controlling a movement of a pickup, comprising: setting an initial value of a pickup pull-in signal (initial signal read-

out as given in column 4, lines 15-19) a level of which reflects a distance between the pickup and a disc (column 4, lines 30-34); focusing a laser beam from the pickup onto the disc based on an initial value of the pull-in signal (column 3, lines 14-35); checking the level of the pull-in signal (done continuously as given in column 4, lines 15-19); and outputting a drive signal for the pickup (necessary to move optical lens) based on the level of the pull-in signal to move the pickup away from the disc, if the level of the pull-in signal remains lower than a predetermined critical level for at least a predetermined critical period of time (column 4, lines 62-68).

Regarding claim 27, Okada teaches in figure 3 the apparatus of claim 26, the pickup comprising: a laser diode radiating a beam of light (14); a collimating lens focusing the beam of light into a parallel beam of light (inherent to system); an objective lens focusing the parallel beam onto the disc (12); a beam splitter (13) splitting the beam of light into an incident beam of light and a reflected beam of light and changing the path of the reflected beam of light; and a photodiode receiving the reflected beam of light (part of elements 16 and 21).

Regarding claim 32, Okada teaches the method of controlling a movement of a pickup as claimed in claim 31, wherein checking a level of the pull-in signal includes checking whether the pull-in signal is lower than a predetermined level for at least a predetermined critical period of time (column 4, lines 62-68).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2, 9, 14, 18-20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada in view of Kubota, US Patent Publication 2002/0101800.

Okada teaches the method and apparatus of preventing a disc from being scratched by an objective lens as given in claims 1, 6, 13, and 21. In addition, Okada teaches a predetermined critical period of time and level in which to perform the given operations. However, Okada fails to explicitly teach the further limitations given in claims 2, 9, 14, 18-20, and 22 of the reasons of the predetermined critical period of time and level.

Regarding claim 2, Kubota teaches the where the predetermined critical period of time is set to a time for which the objective lens remains a minimum distance from the disc without damaging the disc when an actuator actuating a pickup moves at an operational maximum speed (paragraph 0015).

Regarding claim 9, Kubota teaches where the predetermined critical period of time is set to a time for which the objective lens remains a minimum distance from the disc without damaging the disc when the actuator moves at an operational maximum speed (paragraph 0015).

Regarding claim 14, Kubota teaches where the predetermined critical period of time is set to a time for which the objective lens remains a minimum distance from the disc without damaging the disc when the actuator moves at an operational maximum speed (paragraph 0015).

Regarding claim 18, Kubota teaches where the predetermined critical level is set to a value measured at a level for which an objective lens in a pickup should not contact a disc when the pickup moves toward the disc during focus control due to a disturbance (paragraph 0015).

Regarding claim 19, Kubota teaches where the predetermined critical level is set to a value measured at a level for which an objective lens in a pickup should not contact a disc when the pickup moves toward the disc during focus control due to a disturbance (paragraph 0015).

Regarding claim 20, Kubota teaches where the predetermined critical level is set to a value measured at a level for which the objective lens in the pickup should not contact the disc when the pickup moves toward the disc during focus control due to a disturbance (paragraph 0015).

Regarding claim 22, Kubota teaches where the predetermined critical period of time is set to a time for which the objective lens remains a minimum distance from the disc without damaging the disc when an actuator actuating the pickup moves at an operational maximum speed (paragraph 0015).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of the given predetermined critical period of time and

level as taught by Kubota into the system of Okada This would serve the purpose of ensuring that the focusing servo pull-in apparatus by which a focusing servo can be pulled in a recording surface is operated without accompanying a collision of an objective lens with a storage medium (paragraph 0015).

5. Claims 3-5, 7-8, 10-12, 15-17, and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada in view of Matsuda et al., US Patent 6,256,273.

Okada teaches the limitations of the independent claims but fails to teach the further limitations regarding the current used to actuate the pickup as set forth in the following claims.

Regarding claim 3, Matsuda et al. teaches the method of claim 1, wherein the controlling the objective lens comprises applying a direct current signal to the actuator for actuating a pickup having the objective lens (column 5, line 67-column 6, line 5).

Regarding claim 4, Matsuda et al. teaches the method of claim 3, wherein the direct current signal (FBP) is applied to stop the actuator (column 6, lines 2-5).

Regarding claim 5, Matsuda et al. teaches the method of claim 1, wherein the pull-in signal (purpose served by the "focusing error signal") is one of a sum signal of signals focused onto a plurality of division light-receiving units of a photodiode (column 4, line 58-column 5, line 8) and a signal generated by filtering a sum signal through a low-pass filter (column 11, lines 5-8 explain how a band pass filter is used to serve the same purpose).

Regarding claim 7, Matsuda et al. teaches the method of claim 6, further comprising: if the time is not at least the predetermined critical period of time, outputting an average value of a drive signal (taking no action to perform focus jumping operation) that was previously applied to the actuator for actuating a pickup having the objective lens (column 12, lines 1-12 and 27-58 explains how the process works if the time is reached or not).

Regarding claim 8, Matsuda et al. teaches the method of claim 6, wherein the initializing of the pull-in signal comprises initializing the pull-in signal to a level lower than a predetermined direct current level so as to easily detect the predetermined direct current level during the focus pull-in operation (column 5, lines 51-57 explains how the level given is initialized before the focus jump is operated and is thus at a lower value).

Regarding claim 10, Matsuda et al. teaches the method of claim 6, wherein, if the time is at least predetermined critical period of time, applying a direct current signal to the actuator (column 5, line67-column 6, line 5).

Regarding claim 11, Matsuda et al. teaches the method of claim 10, wherein the direct current signal (FBP) is applied to stop the actuator (column 6, lines 2-5).

Regarding claim 12, Matsuda et al. teaches the method of claim 6, wherein the pull-in signal (purpose served by the "focusing error signal") is one of a sum signal of signals focused onto a plurality of division light receiving units of a photodiode (column 4, line 58-column 5, line 8) and a signal generated by filtering a sum signal through a low-pass filter (column 11, lines 5-8 explain how a band pass filter is used to serve the same purpose).

Regarding claim 15, Matsuda et al. teaches the apparatus of claim 13, wherein the controlling unit applies a direct current signal to the actuator (column 5, line67-column 6, line 5).

Regarding claim 16, Matsuda et al. teaches the apparatus of claim 13, wherein the controlling unit applies a direct current signal (FBP) to the actuator so as to stop the actuator (column 6, lines 2-5).

Regarding claim 17, Matsuda et al. teaches the apparatus of claim 13, wherein the pull-in signal (purpose served by the "focusing error signal") is one of a sum signal of signals focused onto a plurality of division light receiving units of a photodiode (column 4, line 58-column 5, line 8) and a signal generated by filtering a sum signal through a low-pass filter (column 11, lines 5-8 explain how a band pass filter is used to serve the same purpose).

Regarding claim 23, Matsuda et al. teaches the computer readable medium of claim 21, wherein a direct current signal (FKP) is applied to the actuator for actuating a pickup having the objective lens (column 5, line 67-column 6, line 2).

Regarding claim 24, Matsuda et al. teaches the computer readable medium of claim 21, wherein the pull-in signal (purpose served by the "focusing error signal") is one of a sum signal of signals focused onto a plurality of division light receiving units of a photodiode (column 4, line 58-column 5, line 8) and a signal generated by filtering a sum signal through a low-pass filter so as to remove a high frequency component (column 11, lines 5-8 explain how a band pass filter is used to serve the same purpose).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of actuating the pickup using the given current signals as taught by Matsuda et al. into the system of Okada. The motivation would be to provide a focusing control apparatus which can certainly perform a successful focus jumping operation (column 2, lines 30-33 of Matsuda et al.).

6. Claims 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada in view of Maeda et al., US Patent 6,977,782.

Regarding claim 28, Okada teaches the apparatus with the limitations of claim 27. Okada does not but Maeda et al. teaches the further limitations of claim 28 including the laser diode having a NA of at least 0.7 (column 6, lines 60-64), and a wavelength of 500 nm or less (column 7, lines 1-3). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of the given laser diode as taught by Maeda et al. into the system of Okada This would serve the purpose of easily forming the objective lens unit that can accurately condense on the signal recording surface despite perturbations from a tilt relative to the optical axis (column 1, lines 52-65 of Maeda et al.).

Regarding claim 30, see column 4, lines 62-68 of Okada, which teaches the method wherein checking a level includes checking when the focus pull-in signal drops to an initial level for a predetermined period of time as recited in this claim.

Response to Arguments

7. Applicant's arguments filed on 1/29/07 have been fully considered but they are moot in view of the new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parul Gupta whose telephone number is 571-272-5260. The examiner can normally be reached on Monday through Thursday, from 8:30 AM to 7 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Korzuch can be reached on 571-272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PHG
4/10/06

TAN DINH
PRIMARY EXAMINER
4/13/07